

Serial No.: 10/519,157
Art Unit: 2431
Amendment after Final Rejection

PU020297
Customer No. 24498
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Listing and Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) An electronic system, comprising:

a plurality of function cards including at least one router card, a plurality of input cards and a plurality of output cards, each having at least one programmable device residing thereon; and

a configuration control card coupled to each one of said plurality of function cards, wherein said configuration control card configures said at least one programmable device residing on each one of said plurality of function cards in response to a request for hardware configuration, wherein said configuration control card comprises a main controller;

a memory subsystem residing on said configuration control card, wherein said configuration control card configures said at least one programmable device residing on each one of said plurality of function cards using configuration information stored in said memory subsystem; wherein said main controller is coupled to said memory subsystem; said main controller configuring each one of said plurality of function cards using said configuration information stored in said memory subsystem; and

a peripheral controller residing on each one of said plurality of function cards, wherein said main controller is coupled to said plurality of function cards via the peripheral controller associated with each function card of the plurality of function cards;

each one of said peripheral controllers attending to:

(1) forwarding the requests for configuration, originated by said programmable device residing with said peripheral controller on one of said function cards, to said main controller; and

(2) attending to forwarding configuration information, provided by said main controller to said programmable device residing with said peripheral controller on one of said function cards.

2. (Cancelled)

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3. (Cancelled)

4. (Currently amended) The apparatus of claim 3 1, wherein each one of said at least one programmable device residing on each one of said plurality of function cards is a field programmable gate array ("FPGA").

5. (Cancelled)

6. (Currently amended) The apparatus of claim 2 1, wherein said plurality of function cards further comprises:

 a plurality of function cards of a first type, said first type of function cards requiring a first set of instructions for configuration thereof;

 a plurality of function cards of a second type, said second type of function cards requiring a second set of instructions for configuration thereof;

 said first set of instructions stored in a first area of said memory subsystem and said second set of instructions stored in a second area of said memory subsystem;

 wherein said configuration control card configures said plurality of function cards of said first type using said first set of instructions stored in said first area of said memory subsystem and said configuration control card configures said plurality of function cards of said second type using said second set of instructions stored in said second area of said memory subsystem.

7. (Previously presented) The apparatus of claim 6, wherein said configuration control card further comprises:

 a main controller coupled to said memory subsystem, said plurality of function cards of said first type and said plurality of function cards of said second type;

 said main controller configuring each one of said plurality of function cards of said first type using said first set of instructions stored in said first area of said memory subsystem; and

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said configuration control card configuring each one of said plurality of function cards of said second type using said second set of instructions stored in said second area of said memory subsystem.

8. (Cancelled)

9. (Currently amended) A broadcast router, comprising:

a first router card having an input side, an output side and at least one programmable device residing thereon;

a plurality of input cards, each one of said plurality of input cards coupled to said input side of said router card and having at least one programmable device residing thereon;

a plurality of output cards, each one of said plurality of output cards coupled to said output side of said router card and having at least one programmable device residing thereon; and

a configuration control card coupled to said router card, each one of said plurality of input cards and each one of said plurality of output cards, said configuration control card configuring said at least one programmable device residing on said router card, each one of said plurality of input cards and each one of said plurality of output cards, in response to a hardware configuration request

a memory subsystem residing on said configuration control card, said memory subsystem including a first memory area, a second memory area and a third memory area;

wherein said configuration control card configures said at least one programmable device residing on each one of said plurality of input cards using hardware configuration information stored in said first area of said memory subsystem, configures said at least one programmable device residing on said first router card using hardware configuration information stored in said second area of said memory subsystem, and configures said at least one programmable device residing on each one of said plurality of output cards using hardware configuration information stored in said third area of said memory subsystem.

10. (Previously presented) The apparatus of claim 9, and further comprising:

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a second router card having an input side, an output side and at least one programmable device residing thereon;

each one of said plurality of input cards further coupled to said input side of said second router card;

each one of said plurality of output cards further coupled to said output side of said second router card;

said configuration card further configuring said at least one programmable device residing on said second router card.

11. (Cancelled)

12. (Previously presented) The apparatus of claim 7, wherein each one of said programmable devices residing on each one of said plurality of input cards, said first router card, and each one plurality of output cards is a field programmable gate array ("FPGA").

13. (Previously presented) The apparatus of claim 12, wherein said configuration control card further comprises:

a memory subsystem, said memory subsystem including a first memory area, a second memory area and a third memory area;

a main controller coupled to said memory subsystem, each one of said plurality of input cards, said first router card, and said plurality of output cards;

said main controller configuring said at least one FPGA of each one of said plurality of input cards using a first set of instructions stored in said first area of said memory subsystem, configuring said at least one FPGA of said first router card using a second set of instructions stored in said second area of said memory subsystem and configuring said at least one FPGA of each one of said plurality of output cards using a third set of instructions stored in said third area of said memory subsystem.

14. (Previously presented) The apparatus of claim 13, and further comprising:

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a second router card having an input side, an output side and at least one FPGA residing thereon;

each one of said plurality of input cards further coupled to said input side of said second router card;

each one of said plurality of output cards further coupled to said output side of said second router card;

said main controller configuring said at least one FPGA of said second router card using said second set of instructions stored in said second area of said memory subsystem.

15. (Previously presented) The apparatus of claim 14, and further comprising:

a peripheral controller residing on each one of said plurality of input cards, said first and second router cards and each one of said plurality of output router cards;

each one of said peripheral controllers attending to forwarding requests for configuration, originated by said FPGA residing with said peripheral controller on one of said plurality of input cards, said first router card, said second router cards or one of said output cards, to said main controller; and

each one of said peripheral controller further attending to forwarding configuration information, provided by said main controller, to said FPGA residing with said peripheral controller on one of said input cards, said first router card, said second router card or one of said output cards.

16. (Currently amended) For a broadcast router having a plurality of function cards including at least one router card, a plurality of input cards, and a plurality of output cards where each function card has one or more configurable devices thereon, a method for configuring said broadcast router, comprising:

issuing a first request for hardware configuration, said first request for configuration issued by a first configurable device residing on a first one of said plurality of function cards;

retrieving hardware configuration information from a shared configuration repository; and

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configuring said requesting configurable device using said hardware configuration information retrieved from said shared configuration repository.

17. (Previously presented) The method of claim 16, and further comprising:

issuing a second request for hardware configuration, said second request for configuration issued by a second configurable device residing on a second one of said at least one card;

retrieving said configuration information from said shared configuration repository, and

configuring the hardware of said second requesting configurable device using said configuration information retrieved from said shared configuration repository;

wherein the same hardware configuration information is used to configure said first and second requesting configurable devices.

18. (Previously presented) The method of claim 16, wherein said broadcast router includes at least one card of a first type and at least one card of a second type, each one of said at least one card of said first and second types having at least one configurable device residing thereon, and further comprising:

storing a first set of instructions in a first area of said shared configuration repository;

storing a second set of instructions in a second area of said shared configuration repository;

retrieving said first set of instructions if said requesting configurable device resides on said at least one card of said first type;

retrieving said second set of instructions if said requesting configurable device resides on said at least one card of said second type.

if said requesting configurable device resides on said at least one card of said first type, configuring said requesting configurable device using said first set of instructions retrieved from said first area of said shared configuration repository; and

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if said requesting configurable device resides on said at least one card of said second type, configuring said requesting configurable device using said second set of instructions retrieved from said second area of said shared configuration repository.

19. (Previously presented) The method of claim 16, wherein said broadcast router further comprises a configuration control card on which a main controller and said shared configuration repository reside, and further comprising:

 said main controller detecting said first request for hardware configuration issued by said first one of said one or more configurable devices residing on said first one of said at least one card;

 said main controller initiating a configuration algorithm upon expiration of a time period subsequent to said detected first request for configuration, said time period allowing additional ones of said one or more configurable devices to request configuration before said configuration algorithm is initiated.

20. (Previously presented) The method of claim 19, wherein said configuration algorithm further comprises:

 selecting a first configurable device residing on one of said at least one cards;
 querying said selected configurable device as to whether it desires configuration;
 if said selected configurable device indicates that it desires configuration,
 propagating configuration information to said selected configurable device;
 selecting a next configurable device residing on one of said at least one cards of said broadcast router; and
 repeating said querying, propagating and selecting steps until all of said one or more configurable device have been queried.